What is claimed as the invention is:

1. A method for transferring data over a telephone line during a conversation, said method comprising the steps of:

dividing an audio signal into a plurality of bands;

delaying the portion of the audio signal in at least one band by less than fifty milliseconds to produce a shadow signal; and

combining the shadow signal with the portion of the audio signal; and

combining the portions to produce a reconstructed audio signal;

wherein the delay represents the data to be transferred.

2. The method as set forth in claim 1 wherein the presence or absence of a shadow signal represents data.

3. The method as set forth in claim 1 wherein at least two shadow signals are produced and the data is represented by two of the shadow signals.

4. The method as set forth in claim 3 wherein the shadow signals occur in different bands.

5. The method as set forth in claim 4 wherein the amount of delay of a portion in a band does not equal the period of a frequency within that band.

6. Apparatus for modulating an audio signal with data, said apparatus comprising:

a plurality of band pass filters having a common input and an output;

a plurality of delay lines, each having an input coupled to the output of a band pass filter and an output;

a plurality of summation circuits each having a first input coupled to the input of a delay line and a second input coupled to an output of the same delay line;

wherein the maximum delay is less than fifty milliseconds.

7.    The apparatus as set forth in claim 6 wherein the delay line coupled to a band pass filter does not delay a signal by an amount equal to the period of a the center frequency of the pass band.

8.    The apparatus as set forth in claim 6 wherein the delay line coupled to a band pass filter does not delay a signal by an amount equal to the period of a frequency within the pass band.

9.    In a telephone having a line output and a line input and capable of operating in half duplex mode, the improvement comprising:
    said telephone having at least two, separate machine states;
    a detector for detecting a shadow signal on said line input; and
    means coupled to said detector for selecting a machine state in accordance with a shadow signal on said line input.

10.    The telephone as set forth in claim 9, wherein said detector comprises:
    a band pass filter;
    a delay line having an input coupled to said band pass filter and at least one output;
    a correlator having a first input coupled to the input of said delay line, a second input coupled to an output of said delay line, and an output; and
    a low pass filter coupled to the output of said correlator;
    wherein the maximum delay of said delay line is less than fifty milliseconds.

11.    The telephone as set forth in claim 10 wherein the period of delay by said delay line does not equal the period of the center frequency of said band pass filter.

12.    The telephone as set forth in claim 10 wherein the period of delay by said delay line does not equal the period of a frequency within the pass band.

13.    Apparatus for detecting the presence of a shadow in an audio signal, said apparatus comprising:
    a band pass filter;

a delay line having an input coupled to said band pass filter and at least one output;

a correlator having a first input coupled to the input of said delay line, a second input coupled to an output of said delay line, and an output; and

a low pass filter coupled to the output of said correlator;

wherein the maximum delay of said delay line is less than fifty milliseconds.


14. The apparatus as set forth in claim 13 wherein the period of delay by said delay line does not equal the period of the center frequency of said band pass filter.


15. The apparatus as set forth in claim 13 wherein the period of delay by said delay line does not equal the period of a frequency within the pass band.


16. A method for transferring data within the voice band over a telephone line during a conversation, said method comprising the steps of:

delaying an audio signal less than 50 milliseconds to produce a shadow signal; and

combining the shadow signal with the audio signal.